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FUNGI AND LICHENS FROM THE ISLAND OF GUAM

Paul Weidemeyer Graff

With the opening up of the Pacific to trade and travel, the natural sequence of events brings about a more universal interest, both general and scientific, regarding the region. From a botanical standpoint our knowledge is as yet extremely limited. A few isolated localities have been worked over to some extent, but even in these places much remains to be accomplished. In the Marianne Islands, of which Guam is the largest, only a few botanical collections of any extent have been made.

These islands are located, approximately, between 13° to 20° north latitude and 143° to 146° east longitude. The island of Guam itself is about 46 kilometers long and 16 wide at its broadest part; this, however, is not in a central location as the island is more or less dumb-bell shaped and only about 5 kilometers broad in the region of Agaña, the chief town. From San Francisco by way of Honolulu, as the boats ordinarily travel, the islands are about 8,670 kilometers distant and are about 2,440 kilometers east from Manila. As is true of a large percentage of the Pacific islands, the Marianne Islands are of volcanic origin.

The island of Guam was discovered by Ferdinand Magellan, during his voyage of circumnavigation, on March 6, 1521, a short time before his fatal visit to the Philippines. The first botanical collection was not made until 1792, when Thaddeus Haenke and Luis Née of the Malaspina Expedition, with which they were connected as botanists, visited the islands. They spent between February 12th and 24th at Guam but there is no record of any fungi having been preserved by them from that place. In fact, but three fungi have been reported as being collected by them on the entire voyage. Two of these were gathered in Mexico and the other in the Philippine Islands. With this list might also be mentioned the fact that nineteen lichens from the American continent, mostly from Peru and Chili, make up the entire list of fungi collected by these two botanists. The next collection of Guam plants was made by Adelbert de Chamisso de Boncourt, botanist of the Romanzoff Expedition, which visited the place in November, 1817. His collection, though containing numerous flowering plants and ferns, contained no fungi from these islands. It seems strange that while the Philippines, Hawaii, Chili, Brazil, and a number of other places are represented by specimens in his fungous collection, Guam should have been slighted in this respect. It may have been that the stay of the Expedition here was very short or material of this class of plants may have been neglected while here.

The first expedition on which any specimens of fungi were gathered and preserved was that under the command of Louis Freycinet, which visited Guam in March, 1819, a little more than a year after Chamisso. The expedition had been joined by Charles Gaudichaud-Beaupré as physician and botanist and it was through his efforts that an extensive botanical collection was made. Several months were spent in the exploration of Guam and the neighboring islands of Rota and Tinian. The expedition made what was probably the largest single collection to date in the botanical exploration of Guam. Unfortunately, however, on the return voyage their vessel, the "Uranie" foundered while in the Falkland Islands. The hold in which the herbarium was stored became flooded and more than half the botanical collections were destroyed.

Among the remaining material there are sixty-seven species designated as fungous specimens, of which twenty-five are credited to the Marianne Islands and the larger portion of the remainder to the following localities: Rio de Janeiro, Isle of France, Rawak, and the Hawaiian Islands. The number classed as lichens is slightly larger, being ninety-seven in all, of which eighteen are from the Marianne Islands. The arrangement, classification, and description of new species in both the fungi and lichens was published by Persoon between 1826 and 1830 and a goodly percentage were described by him as new. Of this material all but thirteen are recognizable and will be found distributed in proper order in the list to follow. The uncertain species include the following and have been omitted: *Lycogala marianna, Sphaeria laguncula,* *Himantia nodulosa, Porinia tessellata, Ophegrapha cymbiformis, O. cincta, Ctesium album, C. rugosum, Gyrophora perforata, Collema ulvaceum, C. peltigera, C. stellare,* and *Physica fastigiata.* It will be noted that a considerable number of species given by Persoon in his fungous list are now known to be lichens and will be found under lichen genera in the portion of this paper following.

Montagne, in 1843 and 1856, published among notes on other fungi a few scattered ones on some species collected by Gaudichaud, all of which are in the herbarium of the Paris Museum. A few lichens also received attention but among the several species mentioned nothing was reported new to the islands.

No further reference to Guam fungi can be found till 1901, when Schumann and Lauterbach published their "Flora der Deutschen Schutzgebiet in der Sudsee." They include an enumeration of six fungi and three lichens. This enumeration does not seem to designate plants collected during this voyage but rather to have been taken, for the most part, from Gaudichaud's publication. The Marianne Islands are not mentioned in their itinerary and were probably not visited. The fungi listed by them include *Auricularia auricula-judae* (L.) Schrot., for which they consider Persoon's Guam type *A. ampla* a synonym and suggest that probably his *A. ornata* should receive a similar classification. Under *Fomes scabrosus* (Pers.) Fr., they include Persoon's two Guam species, *Polyporus scabrosus* and *P. fuscobadius. Polyporus mariannus* Pers. is considered by them as *P. kamphoveneri* Fr., and is so listed. *Polyporus sanguineus* L., *P. saccatus* Pers., and *Agaricus alneus* L., as reported by Persoon, are given under the names *Polystictus sanguineus* (L.) Mey., *P. xanthopus Fr.,* and *Schizophyllum alneum* (L.) Schroet., respectively. Among the lichens *Dictyonema membranaceum* Agardh., *Coenogonium linkii* Ehrenb., and *Ramalina subfraxinea* Nyl., are enumerated from this locality.

In 1905 Safford published in his "Useful Plants of Guam" a short list of six species of fungi which is identical with that of Schumann and Lauterbach, exclusive of their lichens, and is very evidently based on their list rather than any collection of his own or even on Gaudichaud's record. This is the last published list with the exception of one by the present writer, included in Merrill's "Enumeration of the Plants of Guam," in 1914.

In this last named article the writer, with an unfortunate lack of literature, attempted a list of the then known species from the island. Gaudichaud's publication was inaccessible, hence only his species as included by Schumann and Lauterbach and Safford could be included and *Fomes lignosus* was erroneously given in the list. To these were added several recent collections which are preserved in the herbarium of the Bureau of Science, Manila. In all, this enumeration included eighteen species of fungi, one of which, *Cladosporium clemensiae,* was described as new. While this article was short and imperfect with the exclusion of lichens, it more than doubled the known species of fungi from Guam.

The present enumeration is warrented by the inclusion of all known species of fungi and lichens from the island, with the exception of several doubtful species which are listed at the end, and the hope that it may form a basis for future work on the fungus flora of this locality. This enumeration includes Gaudichaud's species which are deposited in the herbarium of the Paris Museum, material collected by Mrs. Mary S. Clemens in 1911 and R. C. McGregor during the same year, and specimens communicated by the Guam Experiment Station. These last are all preserved in the herbarium of the Bureau of Science in Manila where they were examined and identified.

FUNGI

PHYLLACHORA Nitschke

PHYLLACHORA AFZELIAE Syd. Philip. Journ. Sci. Bot. **8**: 277. 1913

Guam Experiment Station 324, on leaves of *Intsia bijuga* (Colbr.) O. Kuntze (*Afzelia bijuga* A. Gray).

Described from the Philippine material collected on the same host. As yet only reported from the Philippines and Guam.

AURICULARIA Bull.

AURICULARIA ORNATA Pers. in Gaud. Bot. Freyc. Voy. Uranie 177. *pl. 2, fig. 4.* 1826

Helvella mesenterica Dicks. Plant. Crypt. **1**: 20. 1785.

Auricularia tremelloides Bull. Hist. Champ. Fr. 278. *pl. 290.* 1791–98.
Auricularia violacea Bull. in l. c.
Thelephora mesenterica Pers. Syn. Fung. 571. 1808.
Thelephora purpurea Pers. in l. c.
Auricularia corrugata Sowerb. Engl. Fungi 290. 1797–1815.
Phlebia mesenterica Fr. Elench. Fung. **1**: 154. 1828.
Oncomyces mesentericus Klotz. Linnaea **7**: 195. 1832.
Auricularia mesenterica Fr. Epicr. Myc. 555. 1838.
Auricularia pusio Berk. Journ. Linn. Soc. Bot. **17**: 386. 1879.

Mary S. Clemens s. n., in the vicinity of Agaña, November 27, 1911, on dead tree branches. Gaudichaud, in the herbarium of the Paris Museum.

Auricularia ornata Pers. is considered by Schumann and Lauterbach in their enumeration of Guam fungi as a synonym of *Auricularia auricula-judae* (L.) Schroet., together with *Auricularia ampla* Pers., also described from Guam material. Their opinion will, however, hardly be accepted.

A fungus of very general tropical and subtropical distribution, in both eastern and western hemispheres.

HIRNEOLA Fries

HIRNEOLA AMPLA (Pers.) Fr. Fungi Nat. 26. 1848

Auricularia ampla Pers. in Gaud. Bot. Freyc. Voy. Uranie 177. 1826.
Exidia nobilis Lév. Ann. Sci. Nat. III. Bot. **2**: 218. 1844.
Exidia ampla Lév. Ann. Sci. Nat. III. Bot. **5**: 159. 1846.
Hirneola nobilis Fr. Fungi Nat. 26. 1848.

Gaudichaud, in herb. Paris Mus.

This fungus has been collected in India, the Moluccas, Philippines, Japan, and in Guiana. It, in all probability, will prove of very general tropical distribution when better known.

HIRNEOLA AURICULA-JUDAE (Fr.) Berk. Outl. Brit. Fung. 289. 1860. Fr. Hym. Eur. 695. 1874

Exidia auricula-judae Fr. Syst. Myc. **2**: 221. 1823.
Tremella auricula L. Sp. Pl. **2**: 1157. 1753.

Tremella sessilis Thunb. Flor. Japon. 345. 1784.
Peziza auricula L. Syst. Veg. Ed. XV. 1018. 1789.
Tremella auriformis Hoffm. Veg. Crypt. 31. *pl. 6, fig. 4.* 1790.
Auricularia sambucina Mart. Flor. Crypt. Erlang. 459. 1817.
Auricularia auricula Underw. Mem. Torr. Bot. Club **12**: 15. 1902.

1911. R. C. McGregor 588, October, 1911. Guam Experiment Station 304.

A very common species in all warm countries of the tropics and neighboring regions.

Hirneola nigricans (Hook.) comb. nov.

Peziza nigricans Hook. in Knuth Syn. Plant. **1**: 13. 1822.
Exidia hispidula Berk. Ann. Mag. Nat. Hist. I, **3**: 396. 1839.
Hirneola hispidula Sacc. Syll. Fung. **6**: 769. 1888.

Guam Exp. Sta. 424, Thompson, May, 1912.

Previously collected in the northern portion of South America, also in Mauritius, Australia and Ceylon.

POLYPORUS Micheli

POLYPORUS MARIANNUS Pers. in Gaud. Bot. Freyc. Voy. Uranie 173. 1826

Polyporus anebus Berk. Hook. Lond. Journ. Bot. **6**: 504. 1847.

Gaudichaud, in herb. Paris Mus.

Schumann and Lauterbach cite *Polyporus mariannus* Pers. as a synonym of *P. kamphoveneri* Fr. With this Murrill does not agree (Bull. Torr. Bot. Club **34**: 468. 1907), but considers the species identical with *P. corrugatus* Pers. It seems probable, however, that it is the same species Berkeley described from Ceylon as *P. anebus*. In this opinion Lloyd (Synopsis Apus Polyporus 382. 1915), who has critically studied much of the basidiomycetous material in the Paris Museum, concurs. As Persoon's name was given the fungus some twenty years prior to Berkeley's, its use should be accepted.

First described from the Marianne Islands. Also collected in Africa, Ceylon, Japan and the islands of the Pacific.

FOMES Fries

Fomes lineatus (Pers.) comb. nov.

Polyporus lineatus Pers. in Gaud. Bot. Freyc. Voy. Uranie 174. 1826.

Polyporus fastuosus Lév. in Gaud. Bot. Voy. Bonite **1**: 180. 1846.

Fomes fastuosus Cooke, Grevillea **14**: 18. 1886.

Gaudichaud, in herb. Paris Mus.

This species was omitted from the lists of both Schumann and Lauterbach, and Safford. As is true of a number of tropical forms, this species may only develop a single hymenial layer but often develops a greater number and hence becomes a Fomes. The possibility of an entire collection from a locality being of one type while another might show the further development of a Fomes has been one of the causes of multiplicity of names in the synonymy of many tropical species. *Pyropolyporus fastuosus* Murr., as first published (Murrill in Bull. Torr. Bot. Club **34**: 179. 1907) for Philippine material, was applied to *Fomes spadiceus* (Berk.) Cooke instead of *F. fastuosus* (Lév.) Cooke, as is shown by the duplicate material in the herbarium of the Bureau of Science, Manila, where both species of the fungus are common.

Collected in the Malay States, Moluccas, Philippines and the Marianne Islands.

FOMES NUBILUS Fr. Epicr. Myc. 491. 1838, var. *albo-limbatus* Kalchbr. Grevillea **10**: 55. 1881

McGregor 589, October, 1911. Guam Exp. Sta. 266.

Previously known only as an African species which had been collected in the Congo and Guinea.

POLYSTICTUS Fries

POLYSTICTUS AFFINIS (Nees) Fr. Nov. Act. Reg. Soc. Sci. Ups. III. **1**: 75. 1855

Polyporus affinis Nees, Nov. Act. Acad. Nat. Cur. $\mathbf{13}^1$: 18. *pl. 4, fig. 1.* 1826.

McGregor 590, October, 1911.

A species intermediate between *Polystictus xanthopus* Fr. and *P. flabelliformis* Kl., and very closely related to *P. luteus* Bl. and Nees, from which it is separated by its smaller size and more delicate character.

Of very general distribution throughout the tropics and one of the most common species to be found in this region.

POLYSTICTUS OCCIDENTALIS (Kl.) Fr. Nov. Symb. Myc. 90. 1851

Polyporus occidentalis Kl. Linnaea **8**: 486. 1833.
Trametes lanatus Fr. Epicr. Myc. 490. 1838.
Trametes occidentalis Fr. Epicr. Myc. 491. 1838.
Trametes wahlbergii Fr. Fungi Natal. 11. 1848.
Trametes scalaris Fr. Fungi Natal. 12. 1848.
Polyporus scorteus Fr. Nov. Symb. Myc. 89. 1851.
Trametes devexa Berk. Journ. Linn. Soc. **13**: 165. 1873.
Polyporus illotus Kalchbr. Grevillea **10**: 102. 1882.
Coriolopsis occidentalis Murr. Bull. Torr. Bot. Club **32**: 358. 1905.

Guam Exp. Sta. 303.

This much described species is of very general distribution throughout the tropics.

POLYSTICTUS SANGUINEUS (L.) Fr. Nov. Symb. Myc. 75. 1851

Boletus sanguineus L. Spec. Plant. Ed. II, 1646. 1763.
Xylometron sanguineum Paul. Icon. Champ. *pl. 3, figs. 3, 4.* 1793.
Agaricus ruber Lamk. Encyc. Met. Bot. **1**: 50. 1783.
Polystictus sanguineus Mey. Flor. Esseq. 304. 1818.
Polyporus sanguineus Pers. in Gaud. Bot. Freyc. Voy. Uranie 170. 1826.
Polyporus flaccidus Pers. in Gaud. Bot. Freyc. Voy. Uranie 171. 1826.
Polyporus ampliporus Fr. Elench. Fung. **1**: 99. 1828.
Pycnoporus sanguineus Murr. Bull. Torr. Bot. Club **31**: 421. 1904.

Guam Exp. Sta. 300.

The distribution of this fungus is universal throughout the tropics and it is a form of the temperate species *Polystictus cinnabarinus* (Jacq.) Fr. It makes no discrimination as to the kind of wood upon which it will grow, being omnivorous in that respect.

POLYSTICTUS XANTHOPUS Fr. Nov. Symb. Myc. 74. 1851

Polyporus xanthopus Fr. Obs. Myc. **2**: 255. 1815–18. Syst. Myc. **1**: 505. 1821.
Boletus katui Ehrenb. in Nees, Hor. Phys. Ber. 93. *pl. 19, fig. 12.* 1820.
Polystictus saccatus Pers. in Gaud. Bot. Freyc. Voy. Uranie 169. *pl. 1, fig. 3.* 1826.
Polystictus cupro-nitens Kalchbr. Thüm. Myc. Univ. n. 1702.
Polystictus crassipes Curr. Flor. Pug. 122.

Gaudichaud, in herb. Paris Mus.

Of general tropical distribution and particularly common through the Indian and Polynesian regions. Closely related to *Polystictus affinis* Nees and *P. perula* (Beauv.) Fr., though having the stipe central rather than lateral, and with several other related species of the "Polystictus perula Group" very common on all sorts of host material in the Malayan islands.

POLYSTICTUS XANTHOPUS Fr. var. florideus (Berk.) Bres. Hedwigia 53: 61. 1912

Polyporus floridens Berk. Hook. Journ. Bot. and Kew Gard. Misc. **6**: 137. 1854.
Polystictus mukuensis Cooke, Grevillea **16**: 25. 1887.
Polystictus luteus (Bl. & Nees) Fr., var. *bukobensis* P. Henn. Engl. Bot. Jahrb. **17**: 27. 1893.

Guam Exp. Sta. 194.

The specimens of this collection have all the characters of the variety, including the slightly larger size of the pores which average 66 by 116 μ, except the color of the top of the pileus. This is pallid and of a light golden brown color. One collection of a fungus identical with this has been made in the Philippine Islands and has also been placed, at least for the present, as belonging to this variety. It is questionable if these are not as worthy of a varietal name as those already known as var. *florideus* or, at least, of being distinguished from them as forma *pallidus*. Both the Philippine and Guam collections show uniformity and as yet no gradations between these different cases have been found.

So far as known this pale form has only been collected in the Philippine Islands and Guam. The usual form is rather common in the Malayan region and the Asiatic tropics but not found with near the frequency of the species.

TRAMETES Fries

TRAMETES CORRUGATUS (Pers.) Bres. Hedwigia **51**: 316. 1912

Polyporus corrugatus Pers. in Gaud. Bot. Freyc. Voy. Uranie 172. 1826.
Polyporus fusco-badius Pers. in l. c.
Polyporus scabrosus Pers. in l. c.
Daedalea sanguinea Klotz. Linnaea **8**: 481. 1833.
Polyporus indecorus Jungh. Flor. Crypt. Java 51. 1838.
Polyporus tegularis Lév. Ann. Sci. Nat. III. Bot. **5**: 131. 1846.
Hexagonia cruenta Mont. Syll. Gen. Spec. Crypt. 169. 1856.
Polystictus persoonii Cooke, Grevillea **14**: 85. 1885.
Trametes nitida Pat. Journ. Bot. **4**: 17. 1890.
Earliella cubensis Murr. Bull. Torr. Bot. Club **32**: 479. 1905.
Earliella corrugata Murr. Bull. Torr. Bot. Club **34**: 468. 1907.
Guam Exp. Sta. 301. Gaudichaud, in herb. Paris Mus.

A much described species of universal tropical distribution. Reported notably from West Africa, India, Ceylon, Java, Borneo, Sumatra, the Philippines, Guam, Australia and the American tropics. The species was first described from material collected in Guam by Gaudichaud-Beaupré.

HEXAGONIA Fries

HEXAGONIA BIVALVIS (Pers.) Bres. Hedwigia **51**: 318. 1912.
var. puchella (Lév.) Bres. Hedwigia **53**: 73. 1912

Hexagonia pulchella Lév. Ann. Sci. Nat. III. Bot. **2**: 200. 1844.
Guam. Exp. Sta. 423.

First described from material collected in Java. Since reported from Malacca, Mauritius and the Philippines. The variety proves to be of much more frequent occurrence than the species.

LASCHIA Fries

LASCHIA PHILIPPINENSIS Graff, Philip. Journ. Sci. Bot. **8**: 300. 1913.

Agaña, Clemens, November 27, 1911, on dead twigs.

The type of this species was also collected by Mrs. Clemens, but on Mount Maquiling, Luzon, in the Philippine Islands. A comparison of this material with the type leaves no question of their identity.

So far as known this species has only been collected in the Philippines and Guam.

SCHIZOPHYLLUM Fries

SCHIZOPHYLLUM COMMUNE Fr. Syst. Myc. **1**: 330. 1821

Agaricus radiatus Vaill. Bot. Paris 10. 1727.
Agaricus alneus Linn. Flor. Suec. n. 1242. 1745–55.
Agaricus multifidus Batsch, Elench. Fung. Contin. **1**: 124. *fig. 126.* 1786.
Scaphophorus agaricoides Ehrb. in Nees Horae Phys. Berol. 94. 1820.
Schizonia vulgaris Pers. Myc. Eur. **3**: 14. 1822–28.
Schizophyllum alneum Schroet. in Cohn Krypt. Flor. Schles. **3**: 383. 1887.

Guam. Exp. Sta. 302.

This is probably one of the most widely distributed of all basidiomycetous fungi. It is apparently found throughout all tropical and temperate regions.

LENTINUS Fries

LENTINUS VELUTINUS Fr. Linnaea **5**: 510. 1830

Agaricus strigopus Pers. in Gaud. Bot. Freyc. Voy. Uranie 167. *pl. 1, fig. 6.* 1826

Lentinus capronatus Fr. Epicr. Myc. 388. 1838.
Scleroma velutinum Fr. Epicr. Myc. 392. 1838.
Lentinus setiger Lév. Ann. Sci. Nat. III. Bot. **2**: 176. 1844.

Lentinus braccatus Lév. in Zoll. Syst. Verz. Ind. Arch. 17. 1854–55.

Guam Exp. Sta. 425.

Persoon's name is antedated by *Lentinus strigopus* (Schw.) Fr., reported by Schweinitz from Carolina, and hence is not valid.

Collected in tropical South America, the West Indies, United States and the Philippine Islands.

COPRINUS Persoon

COPRINUS HEMEROBIUS Fr. Epicr. Myc. 253. 1838

Agaricus campanulatus Bolt. Hist. Fung. 31. 1788–91.
Agaricus bubulinus Schum. Enum. Plant. Sael. 2: 352. 1801–03.

Guam Exp. Sta. 329.

This species is very evidently related to *Coprinus plicatilis* (Curt.) Fr., as found in the Philippine Islands. It has, however, a longer stipe and a glabrous cap. Mature spores of the Guam material average 8.7 × 12.5 μ and show a tendency toward being apiculate.

Previously reported from various localities in Europe.

NAUCORIA Fries

NAUCORIA PUSIOLA Fr. Hym. Eur. 258. 1874

Agaricus pusiolus Fr. Syst. Myc. 1: 264. 1821.
Agaricus laevis Pers. Myc. Eur. 3: 164. *pl. 25, fig. 1.* 1822–28.

Guam Exp. Sta. 330.

Spores broadly elliptical in the Guam material, sometimes becoming irregularly elliptical, averaging 6 × 7.8 μ, light brown in color.

Previously collected in Europe and Australia.

PHOMA Fries

PHOMA LUSITANICA Thüm. Contr. Myc. Lusit. 335

Vicinity of Piti, McGregor 406a, October, 1911, on twigs of *Glossogyne tenuifolia* (Less.) Cass.

Spores 2 × 4 μ in perithecia averaging 95 μ wide and 130 μ high, including the ostiole.

Previously collected in Lusitania by Moller.

CLADOSPORIUM Link

CLADOSPORIUM CLEMENSIAE Graff, Philip. Journ. Sci. Bot. 9: 40. 1914

Vicinity of Agaña, Clemens, November 27, 1911, on leaves of *Eragrostis tenella* (L.) R. & S.

Found in great quantities on the under surface of the leaves and occasionally on the upper in dark brown spots. The vegetative hyphae is light in color, septate and branches irregularly. Conidiophores erect, simple, fuscous, seldom more than three or four in a cluster. Color is given to the spots by the conidiophores and spores which are dark brown.

As yet only known from Guam.

CLADOSPORIUM FASCICULATUM Corda, Icon. Fung. Cog. 15. *pl. 4, fig. 216.* 1842

Vicinity of Piti, Guam Exp. Sta. 4a, Thompson, November, 1910, on *Dactyloctenium aegyptiacum* Willd.

Reported from both Europe and Asia.

LICHENES

PSEUDOPYRENULA Müll.

Pseudopyrenula tessella (Pers.) comb. nov.

Verrucaria tessella Pers. in Gaud. Bot. Freyc. Voy. Uranie 183. 1826–30.
Varrucaria ochroleuca Eschw. in Mart. Icon. Sel. *pl. 8, fig. 3, 4.* 1828.
Trypethelium ochroleucum Nyl. Flora 126. 1869.
Pseudopyrenula ochroleuca Wainio, Lich. Brésil 209. 1890.

Gaudichaud, in herb. Paris Mus.

Collected in tropical America, India, the Federated Malay States, and Guam.

PSEUDOPYRENULA TROPICA (Ach.) Müll. Arg. Lich. Beitr. 602. 1883

Verrucaria tropica Ach. Lich. Univ. 278. 1810.
Verrucaria gaudichaudii Fée, Essai Crypt. Ecore. 87. *pl. 22, fig. 4.* 1824.

Pyrenula gaudichaudii Pers. in Gaud. Bot. Freyc. Voy. Uranie 182. 1826–30.
Sagedia tropica Massal. Ric. Lich. Crost. 161. 1852.
Trypethelium tropicum Müll. Arg. Pyr. Cub. 393. 1885.

Gaudichaud, in herb. Paris Mus.

Reported from tropical Africa, Malaya, and tropical Asia.

BOTTARIA Massalongo

BOTTARIA VARIOLOSA (Pers.) Wainio, Lich. Brésil 197. 1890

Pyrenula variolosa Pers. in Gaud. Bot. Freyc. Voy. Uranie 181. 1826–30.
Verrucaria variolosa Mont. Syll. Crypt. 368. 1861.
Anthracothecium variolosum Müll. Linnaea **43**: 44. 1880.

Gaudichaud, in herb. Paris Mus.

Probably a well distributed species. Reported from Cuba, Brazil, Mexico, Guam, and tropical Africa.

ARTHONIA (Acharius) Zahlbr.

ARTHONIA VIOLACEA Pers. in Gaud. Bot. Freyc. Voy. Uranie 187. 1826–30

Gaudichaud, in herb. Paris Mus.

As yet only reported from localities in Polynesia.

GRAPHIS (Adanson) Müll.

GRAPHIS CONTEXTA (Pers.) Nyl. Bull. Soc. Linn. Norm. II. **2**: 81. 1868

Emblemia contexta Pers. in Gaud. Bot. Freyc. Voy. Uranie 184. 1826–30.
Emblemia venosa Mont. Ann. Sci. Nat. III. Bot. **10**: 129. 1848.

Gaudichaud, in herb. Paris Mus.

Collected in tropical Africa, southern Asia, and the islands of the Pacific.

GRAPHIS HETEROCARPA Nyl. Lich. Japon. 114. 1890

Opegrapha heterocarpa Fée, Essai Crypt. Exot. **1**: 29. 1824.
Graphis scripta Ach., var. *ochroleuca* Pers. in Gaud. Bot. Freyc. Voy. Uranie 183. 1826–30.

Gaudichaud, in herb. Paris Mus.

A species of very cosmopolitan distribution, both tropical and temperate.

GRAPHIS LABYRINTHICA Ach. Syn. Lich. 107. 1814

Stictis dispar Pers. in Gaud. Bot. Freyc. Voy. Uranie 178. 1826–30.

Sarcographa labyrinthiformis Belang. Voy. Ind. Orient. Crypt. 137. 1846.

Gaudichaud, in herb. Paris Mus.

Found in the American tropics, Malaya, and East Africa.

COENOGONIUM Ehrenb.

COENOGONIUM CONTROVERSUM Pers. in Gaud. Bot. Freyc. Voy. Uranie 214. 1826–30

Coenogonium linkii Ehrenb., var. *leprieurii* Mont. Ann. Sci. Nat. III. Bot. **16**: 47. 1851.

Coenogonium leprieurii Nyl. Ann. Sci. Nat. IV. Bot. **16**: 89. *fig. 15–19.* 1862.

Gaudichaud, in herb. Paris Mus.

Collected in tropical South America, New Caledonia, Mauritius and East Africa.

LECIDEA Acharius

LECIDEA FURFURACEA Pers. in Gaud. Bot. Freyc. Voy. Uranie 192. 1826–30

Lecidea sanguineo-atra Nyl., var. *furfuracea* Nyl. Enum. Lich. 121. 1857.

Collected in the American tropics and islands of the Pacific.

LEPTOGIUM (Acharius) S. Gray

LEPTOGIUM TREMELLOIDES (Linn.) Wainio, Lich. Brésil 209. 1890

Lichen tremelloides Linn. Syst. Veget. Suppl. 450. 1781.

Lichen azureus Sw. Flor. Ind. Occ. 3: 1895. 1806.

Collema mariannum Pers. in Gaud. Bot. Freyc. Voy. Uranie 203. 1826–30.

Leptogium mariannum Mont. in Gay Hist. Fis. Polit. Chile **8**: 226. 1852.

Leptogium azureum Nyl. Lich. N. Zeland 10. 1888.

Gaudichaud, in herb. Paris Mus.

A plant of very broad tropical and semitropical distribution.

PANNARIA Delacroix

PANNARIA PANNOSA (Ach.) Nyl. Syn. Lich. 2^1: 29. 1863.

Parmelia pannosa Ach. Syn. Lich. 329. 1814.

Parmelia marianna Fr. Syst. Orb. Veg. 284. 1825.

Pannaria marianna Müll. Arg. Lich. Beitr. 1159. 1887.

Gaudichaud, in herb. Paris Mus.

Reported from Brazil, East Africa, Malacca, Java, and other Pacific islands.

COCCOCARPIA Pers.

COCCOCARPIA INCISA Pers. in Gaud. Bot. Freyc. Voy. Uranie 206. 1826–30.

Coccocarpia molybdaea Pers., var. *incisa* Nyl. Syn. Lich. **2**: 43. 1885.

Gaudichaud, in herb. Paris Mus.

Collected in tropical America, Java, Malacca, and the Adaman Islands.

COCCOCARPIA PELLITA (Ach.) Müll. Arg. Lich. Beitr. 421. 1882

Parmelia pellita Ach. Lich. Univ. 468. 1810.

Coccocarpia molybdaea Pers. in Gaud. Bot. Freyc. Voy. Uranie 206. 1826–30.

Pannaria molybdaea Tuck. Syn. N. Am. Lich. **1**: 124. 1882.

Gaudichaud, in herb. Paris Mus.

Collected in Brazil, Peru, Japan, Malacca, Java, and East Africa.

COCCOCARPIA PELLITA (Ach.) Müll., var. smaragdina (Pers.) Müll. Flora **1882**: 421. 1882

Coccocarpia smaragdina Pers. in Gaud. Bot. Freyc. Voy. Uranie 206. 1826–30.

Gaudichaud, in herb. Paris Mus.

An American and Asiatic species. Collected in Brazil, New Zealand, Java, and Malacca.

PERTUSARIA DC.

PERTUSARIA VELATA (Turn.) Nyl. in Hue, Rev. Bot. **5**: 118. 1886

Parmelia velata Turn. Trans. Linn. Soc. 9: 143. *pl. 12, fig. 1.* 1808.
Lecanora pilulifera Pers. in Gaud. Bot. Freyc. Voy. Uranie 194. 1826–30.
Pertusaria pilulifera Nyl. Enum. Lich. 116. 1857.
Clausaria fallens Nyl. Ann. Sci. Nat. IV. Bot. **12**: 45. 1859.

Gaudichaud, in herb. Paris Mus.

First described by Turner from English material where he mentions that it is rarely found. Since collected in the tropics of America, Africa, Asia, and Oceania.

PARMELIA (Acharius) DeNot.

PARMELIA CAPERATA (Linn.) Ach. Meth. Lich. 216. 1803

Lichen caperatus Linn. Sp. Pl. 1147. 1753.

Gaudichaud, in herb. Paris Mus.

A species of very general distribution, both tropical and temperate localities forming its habitat.

RAMALINA Acharius

RAMALINA FARINACEA (Pers.) Nyl. Syn. Lich. 1^2: 294. 1860

Physcia farinacea Pers. in Gaud. Bot. Freyc. Voy. Uranie 208. 1826–30.

Gaudichaud, in herb. Paris Mus.

Collected in tropical America, Tahiti, Japan, Malacca, India, and northern Africa.

RAMALINA SUBFRAXINEA Nyl. Bull. Soc. Linn. Norm. II. 4: 139. 1870

Gaudichaud, in herb. Paris Mus.

Collected also in Chile, the islands of Juan Fernandez, and Mauritius.

PHYSCIA (Schreber) Wainio

PHYSCIA AIPOLIA (Ach.) Nyl. Flora **1870**: 38. 1870

Parmelia aipolia Ach. Syn. Lich. 215. 1814.

Physcia stellaris (Linn.) Fr. var. *aipolia* Nyl. Notis. Sällsk. Fauna Flora Fenn. **5**: 111. 1861.

Gaudichaud, in herb. Paris Mus.

Collected in Europe; the American and Asiatic tropics.

PHYSCIA CRISPA (Ach.) Nyl. Syn. Lich. **1**^{2}: 423. 1860

Parmelia crispa Ach. Syn. Lich. 312. 1814.

Physcia domingensis Nyl. Enum. Lich. 106. 1857.

Gaudichaud, in herb. Paris Mus.

A purely tropical species so far as known and collected only in the American tropics and the islands of the Pacific.

ANAPTYCHIA Koerber

ANAPTYCHIA DENDRITIC (Pers.) Wainio, Lich. Brésil 134. 1890

Borrera dendritica Pers. in Gaud. Bot. Freyc. Voy. Uranie 207. 1826–30.

Gaudichaud, in herb. Paris Mus.

This species as yet has only been reported from Brazil and the Marianne Islands.

RHIPIDONEMA Mattirolo

RHIPIDONEMA MEMBRANACEUM (Arg.) Sacc. Syll. Fung. **6**: 688. 1888

Dictyonema membranaceum Arg. Syst. Alg. 85. 1824.

Gaudichaud, in herb. Paris Mus.

Described from material collected in the Marianne Islands by Gaudichaud and placed under the Confervoideae. The species, however, belongs to the small group of the Hymenolichens which seem to be confined to a tropical habitat.

Found in the tropics of both the old and new world.

DOUBTFUL SPECIES

The following questionable species have been excluded from the list above. They are from Persoon's enumeration of Gaudichaud's collection, twelve being types of new species. Further study will be necessary to establish their identity if that be possible.

Ctesium album Pers.
Ctesium rugosum Pers.
Gyrophora perforata Pers.
Collema ulvaceum Pers.
Collema peltigera Pers.
Collema stellare Pers.
Physcia fastigiata Pers.
Lycogala marianna Pers.
Sphaeria laguncula Pers.
Himantia nodulosa Pers.
Porinia tessellata Pers.
Ophegrapha cymbiformis Floerke
Ophegrapha cincta Pers.

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BIBLIOGRAPHY

1. **Chamisso, A. de, & Schlechtendal, D. F. L. von.** De plantis in Expeditione speculatoria Romanzoffiana observatis. Linnaea **2**: 145–233. *pl. 4–6.* 1827.
2. **Ehrenberg, C. G.** Fungos a viro clarissimo Adelberto de Chamisso sub auspiciis Romanzoffianis in itinere circa terrarum globum collectos. In Nees von Esenbeck, C. G. Horae Physicae Berolinenses Collectae 79–104. *pl. 17–20, fig. 1–17.* 1820.
3. **Graff, P. W.** Fungi. In Merrill, E. D. Enumeration of the Plants of Guam. Philip. Journ. Sci. Bot. **9**: 37–40. 1914.
4. **Montagne, J. F. C.** Plantes cellulaires exotiques. Ann. Sci. Nat. II. Bot. **19**: 53–85. 1843.
5. **Montagne, J. F. C.** Sylloge generum specierumque cryptogamarum 1–498. 1856.
6. **Persoon, C. H.** Fungi et Lichenes. In Gaudichaud-Beaupré, C. Botanique. Voyage autour du Monde, Enterpris par Ordre du Roi, Exécuté sur les corvettes de S. M. L'Uranie et La Physicienne, pedant les annees 1817–1820, par M. Louis de Freycinet 165–215. *pl. 1, 2.* 1826–30.
7. **Presl, C. B.** Reliquiae Haekeanae; seu Descriptiones et icones plantarum quas in America ——— in insulis Philippinis et Marianis collegit Thaddäeus Haenke **1**: 1–356. *pl. 1–48.* 1825–30. **2**: 1–152. *pl. 49–72.* 1831–35.
8. **Safford, W. E.** The Useful Plants of the Island of Guam. Contr. U. S. Nat. Herb. **9**: 1–416. *pl. 1–70.* 1905.
9. **Schumann, Karl, & Lauterbach, Karl.** Die Flora der Deutschen Schutzgebiet in der Sudsee 1–613. *pl. 1–22.* 1901.